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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,708	07/07/2003	Tomoya Bando	36856.1089	7918
7590	06/15/2005		EXAMINER	
Keating & Bennett LLP Suite 312 10400 Eaton Place Fairfax, VA 22030			DINH, TUAN T	
			ART UNIT	PAPER NUMBER
			2841	

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/614,708		BANDO, TOMOYA	
	Examiner		Art Unit	
	Tuan T. Dinh		2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 11-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/7/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's election without traverse of Specie I (figure 1, claims 1-5, and 7-10) in the reply filed on 04/04/05 is acknowledged.

Drawings

2. The drawings are objected to because "figures 1-8 do not show cross-hatchings of ceramic layers in each of the figures". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4, 8, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by the Admitted by applicant (Prior Art-figure 8), hereafter APA.

As to claim 1, APA discloses a multilayer ceramic substrate with a cavity (1) as shown in figure 8 (see pages 1-3 in a specification) comprising:

a multilayer composite member (4) including plurality ceramic layers (3) disposed one on another;

a cavity (7) formed the multilayer composite member (4) such that an opening (6) of the cavity (7) located least one principal surface (a bottom surface 5) of the multilayer composite member (4);

a bottom-surface conductive film (13) disposed on a bottom surface the cavity (7);

an electronic component (8) disposed in the cavity (7);

a capacitor conductive film (10) disposed in the multilayer composite member (4) such that the capacitor conductive film (13) faces bottom-surface conductive film via (not shown) at least ceramic layer (13), see paragraph 2 of page 1 through paragraph 1 of page 2.

As to claim 2, APA discloses a ground potential is applied to the bottom surface conductive film (13), see lines 5-6 in page 3.

As to claim 3, APA discloses the electronic component (8) is adhered on the bottom-surface conductive film via a non-conductive-adhesive, see lines 14-16, page 3.

As to claim 4, APA discloses the electronic component (8) is electrically connected to bottom-surface conductive film (13), see lines 7-9, page 3.

As to claim 8, APA discloses the capacitor conductive film (10) is constructed the shape of strip-line (film) such that distributed constant capacitance (a value capacitance is formed between two layers) defined between capacitor conductive film and bottom-surface conductive film.

As to claim 10, APA discloses the substrate (1) in figure 8 when the multilayer ceramic substrate (1) is mounted on a mounting motherboard (2), the principal surface (the bottom surface 5) of the multilayer composite member (4) with the cavity (7) comes into contact with the mounting motherboard (2).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over (the APA, figure 8) in view of Bird et al. (U.S. Patent 5,831,810).

As to claim 5, APA discloses the bottom-surface conductive film (13) disposed so as to extend into the inside of multilayer composite member (4), APA does not disclose the bottom surface conductive film across an edge of the bottom surface of the cavity.

Bird et al. shows in figure 2 that a ground layer (44, column 4, line 20) disposed and extended inside a multilayer ceramic substrate (12, column 3, lines 55-56, and column 4, lines 24-25) across an edge of a bottom surface of a cavity (14, column 3, line 56).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a conductive layer (ground layer) disposed and extended across an edge of a bottom surface of a cavity of a substrate as taught by Bird et al. employed in the substrate of APA in order to reduce noise and filtering signal through an interlayer connection.

As to claim 7, APA does not disclose the capacitor conductive film (10) is disposed so as to face the bottom-surface conductive film (13) via a single ceramic layer.

Bird et al. shows in figure 2 the ceramic substrate (12) having a conductive layer (42) faced a ground layer (44) via a single ceramic layer.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a conductive layer faced a ground layer via a single ceramic layer as taught by Bird et al. employed in the substrate of APA in order to increase capacitance.

As to claim 9, APA does not disclose an external terminal electrode, which is to be electrically connected a mounting motherboard when the multilayer ceramic substrate is mounted on the mounting motherboard is formed on an outer surface of the multilayer composite member, and the bottom-surface conductive film is electrically connected to the external terminal electrode.

Bird et al. shows in figure 2 the multilayer ceramic substrate (12) comprising an external terminal electrode (metal wiring pins 36, column 4, line 4) connected to a circuit board (column 4, lines 4-6), and a bottom surface conductive film is electrical connected to the electrode (by vias form inside the substrate 12).

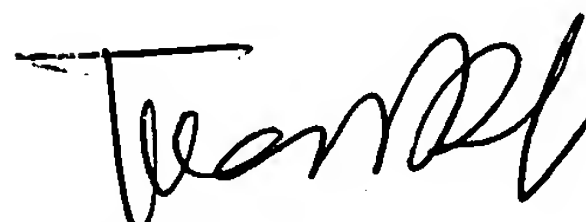
It would have been obvious to one having ordinary skill in the art at the time the invention was made to have an external terminal electrode connected to a circuit board, and a bottom surface conductive film is electrical connected to the terminal electrode as taught by Bird et al. employed in the substrate of APA in order to ground signal of substrate built-in chip connected on a board.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T. Dinh whose telephone number is 571-272-1929. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tuan Dinh
June 07, 2005.